

New Species of *Lachemilla* (Rosaceae) from South America

Katya Romoleroux

Herbario QCA, Escuela de Ciencias Biológicas, Pontificia Universidad Católica del Ecuador,
Av. 12 de Octubre y Roca Apdo. 2184, Quito, Ecuador. Katyaromoleroux@yahoo.com,
kromoleroux@puce.edu.ec

ABSTRACT. Two new species of *Lachemilla* (Focke) Rydberg (Rosaceae) from the Andes of Ecuador and Colombia are described and illustrated. *Lachemilla llanganatensis* Romoleroux, from Ecuador, is characterized by its loosely ascending habit, sparsely short-hispid indumentum, presence of entire basal leaves, and ascending to spreading, verticillate stem leaves. The flowers are grouped in cymes of three to six flowers, with spreading sepals and episepals, and the hypanthia are often sparsely hirsute. *Lachemilla kieftiana* Romoleroux, from Colombia, is distinguished by its stoloniferous habit and basal leaves in rosettes with subreniform to 3-lobed, sericeous blades. The flowers are grouped in cymes of three to 10 flowers, subsessile, floral bracts free, with ascending sepals and episepals, and the hypanthia are mostly sericeous.

RESUMEN. Se describen e ilustran dos nuevas especies de *Lachemilla* (Focke) Rydberg (Rosaceae) de los Andes de Ecuador y Colombia. *Lachemilla llanganatensis* Romoleroux, del Ecuador, se caracteriza por su hábito ascendente, pubescencia esparcidamente hispidula, presencia de hojas basales enteras, y hojas distales verticiladas con lóbulos foliares acendentes a horizontales. Flores agrupadas en cimas de tres a seis flores, con sépalos y episépalos horizontales e hipantio esparcidamente hirsuto. *Lachemilla kieftiana* Romoleroux, de Colombia, se distingue por el hábito estolonífero y hojas basales en roseta, láminas subreniformes, sericeas. Flores agrupadas en cimas de tres a 10 flores, sésiles o subsésiles, brácteas florales libres, y sépalos y episépalos ascendentes e hipantio sericeo.

Key words: Andes, Colombia, Ecuador, IUCN Red List, *Lachemilla*, Rosaceae.

Lachemilla (Focke) Rydberg is a Neotropical genus of perennial herbs and shrubs with approximately 75 species, occurring from the southern high mountains of Mexico to northern Chile and Argentina. Species diversity is highest in the region from Venezuela to Ecuador (Romoleroux, 2004). *Lachemilla* is recorded as an important and species-rich genus in páramos,

where it can form dense stands, and together with other páramo plants serves as source of water. *Lachemilla* was initially described as a section of *Alchemilla* L., a genus distributed in Europe, Asia, and northern Africa (Focke, 1888; Perry, 1929). Rydberg (1908) and Rothmaler (1937), however, treated *Lachemilla* as a genus distinct from *Alchemilla* on the basis of floral differences and geographic distribution. A complete monograph of *Lachemilla* is currently being prepared by the author, since the last published revision was that of Perry (1929). Preliminary molecular studies on *Lachemilla* have shown that *Lachemilla* is monophyletic and that it is closely related to *Alchemilla* and *Aphanes* L. (Gehrke et al., 2008).

The purpose of this paper is to describe two new species of *Lachemilla* from the Andes of Ecuador and Colombia. The following new species were discovered during comprehensive study of the genus.

1. *Lachemilla llanganatensis* Romoleroux, sp. nov. TYPE: Ecuador. Tungurahua: Cordillera de Llanganates, Páramo de Jaramillo, 78°22'W, 1°10'S, 4000–4250 m, 2 Nov. 1984, S. Laegaard 53287 (holotype, AAU; isotype, QCA). Figure 1.

Haec species quoad indumentum hispidum etiam folia caulina reducta vaginas lobatas verticillatas formantia *Lachemillae hispidulae* (L. M. Perry) Rothmaler similis, sed ab ea habitu laxo ascendenti, pubescentia sparsim breviterque hispida, praesentia foliorum basalium, lobis distalibus foliorum caulinarum ascendentibus vel patentibus, sepalis et episepalis patentibus atque hypanthio interne et acheniis basaliter plerumque sparsim hirsutis distinguitur.

Subshrubs; stems loosely ascending, slightly branched at apex, sparsely short-hispid. Basal leaves usually present, blades obovate in outline, 3- to 5-lobed at apex, 4–6.5 × 2.8–4 mm, coriaceous, margins serrate, sparsely villous mostly on the veins; petioles 1–3 mm; stipules usually present, 4–8 mm, basally adnate to petioles, free at the apex, membranous, brown. Stem leaves reduced, adnate with stem stipules to form verticillate, lobed sheaths, sheath lobes 6 to 9, spreading at maturity, deltate-lanceolate, 3–5 × 1–2 mm (3/4 to 2/5 of the entire sheath length),

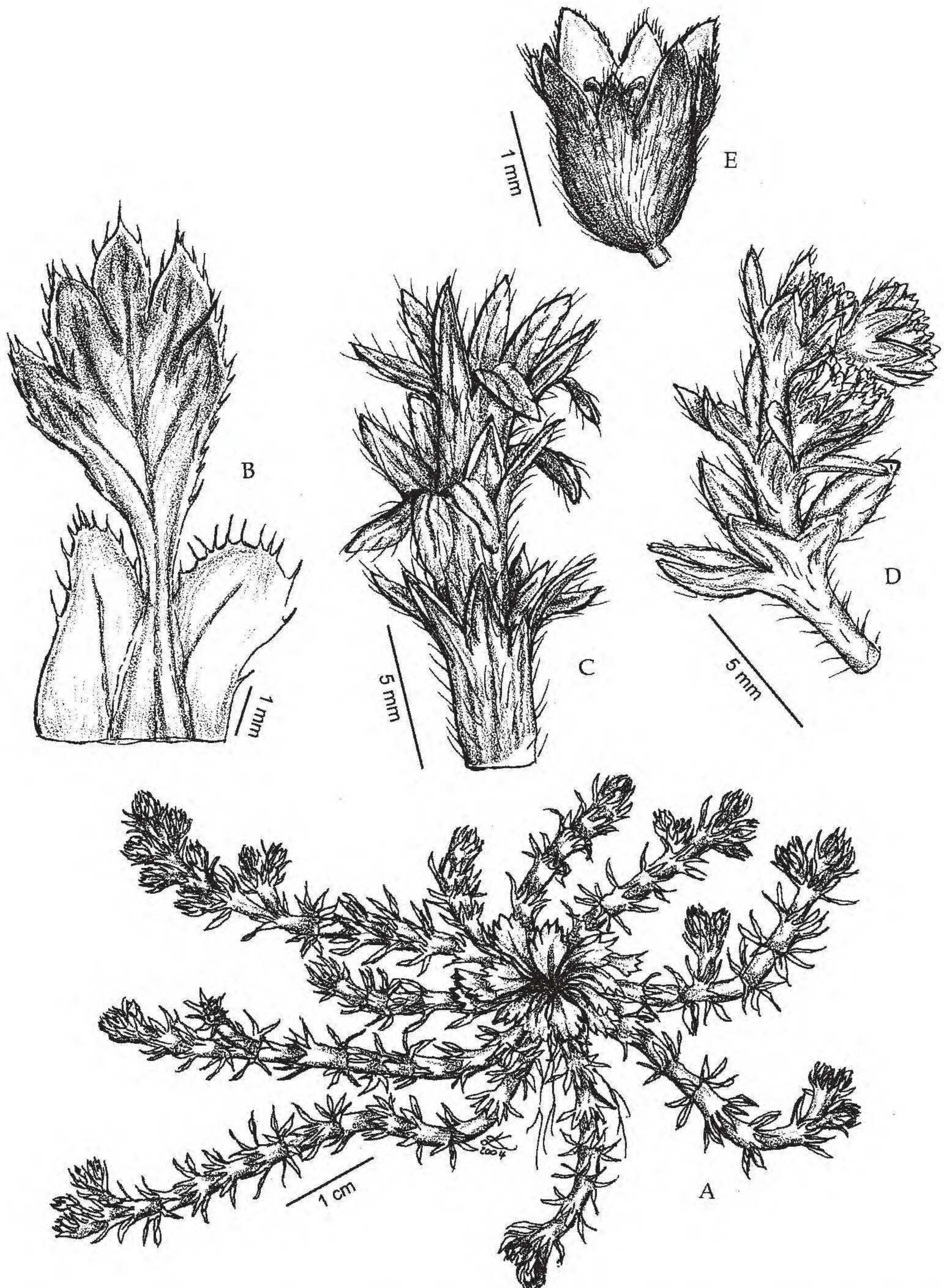


Figure 1. *Lachemilla llanganatensis* Romoleroux. —A. Habit. —B. Basal leaves with stipules. —C. Branch with lobed sheaths formed by stipules and reduced leaves. —D. Flowering branch. —E. Flower. Drawn from the holotype S. Laegaard 53287 (AAU).

coriaceous, margins strongly revolute. Inflorescences of terminal and axillary glomerulate 3- to 6-flowered cymes; floral bracts lobed, ascending; pedicels 0.1–0.4 mm, hirsute, or absent. Flowers 1.7–2.3 mm;

hypanthium turbinate to globose at maturity, 1–1.5 × 0.8–1.2 mm, appressed-villous outside, glabrous or sparsely hirsute within, with reddish glands at base of hairs; episepals and sepals spreading to curved or

slightly connivent at maturity, green, abaxially pilose to hirsute, adaxially glabrous; episepals 4, deltate, $0.3\text{--}0.55 \times 0.2\text{--}0.4$ mm; sepals 4, ovate-deltate, $0.7\text{--}0.8 \times 0.4\text{--}0.6$ mm; stigmas subclavate. Achenes 2, ovoid-globose, $0.9\text{--}1.2 \times 0.7\text{--}0.8$ mm, surface slightly reticulate, usually sparsely hirsute at base.

Distribution, habitat, and phenology. *Lachemilla llanganatensis* is known from the Cordillera de los Llanganates, in the east-central Ecuadorian Andean region, from 3950–4350 m. It has been found growing in windswept open rocky areas and in bunchgrass páramo with *Swallenochloa* McClure spp. and other *Lachemilla* spp. The species was collected in flower in November.

IUCN Red List category. *Lachemilla llanganatensis* should be classified as DD (Data Deficient) according to IUCN Red List criteria (IUCN, 2001). The species has been found in a limited area of distribution, which suggests that it is a rare taxon. It is possible, however, that the species still persists in nearby areas with similar habitats.

Etymology. The specific epithet of *Lachemilla llanganatensis* is derived from the Cordillera de los Llanganates, where the type was collected. The Cordillera de los Llanganates is known for being difficult to access and is the subject of Incan legends.

Relationships. *Lachemilla llanganatensis* resembles *L. hispidula* (L. M. Perry) Rothmaler in its hispid indumentum and reduced stem leaves that form verticillate lobed sheaths. However, *L. llanganatensis* differs in its loosely ascending habit, short-hispid indumentum, the presence of basal leaves, the spreading to curved stem leaf lobes, the spreading sepals and episepals, and the sparsely hirsute internal basal part of the hypanthia and achenes.

Paratypes. ECUADOR. **Tungurahua:** Cordillera de los Llanganates, upper steep rocky part of Cerro Hermoso, $1^{\circ}9'S$, $78^{\circ}21'W$, 4100 m, 11 Nov. 1980, *L. Holm-Nielsen & J. Jaramillo* 28449 (AAU); Páramo de Jaramillo, 12 km NW of Cerro Hermoso, $1^{\circ}13'S$, $78^{\circ}17'W$, 4350 m, 13 Nov. 1980, *L. Holm-Nielsen & J. Jaramillo* 28817 (AAU). **Tungurahua-Napo:** shoulder of Cerro Hermoso, 1.5 km W of the summit, $1^{\circ}13'S$, $78^{\circ}18'W$, 3950 m, 12 Nov. 1980, *L. Holm-Nielsen & J. Jaramillo* 28739 (AAU).

2. *Lachemilla kieftiana* Romoleroux, sp. nov.

TYPE: Colombia. Magdalena: Sierra Nevada de Santa Marta, SE slopes, Hoya del Rio Donachuí, Laguna de Calocribe (E of Meollaca), páramo 3600–3700 m, 30 Sep. 1959, *J. Cuatrecasas & R. Romero-Castañeda* 24554 (holotype, U; isotype, NY). Figure 2.

Haec species quoad habitum, indumentum etiam foliorum formam *Lachemillae uniflorae* Maguire similis, sed ab ea foliis majoribus, hypanthio extus pro parte maxima sericeo atque episepalis brevioribus distinguitur.

Herbs stoloniferous; branches decumbent, \pm sericeous-villous. Basal leaves in rosettes, blades subreniform in outline, slightly 3-lobed, $8\text{--}12 \times 15\text{--}21$ mm, chartaceous, lateral lobes occasionally bilobed, margins crenulate-serrate, abaxially sericeous mostly on the veins, adaxially sericeous-villous to sparsely villous; petioles 8–20 mm; stipules 4–7 mm, basally adnate to petiole, free and acute at the apex, membranous, entire, brown. Stem leaves absent or reduced, 3-parted, $5\text{--}6.5 \times 1.5\text{--}3$ mm, adnate to the stipular lobes at base; stipular lobes $3\text{--}5 \times 1.2\text{--}2$ mm, deltate, spreading to curved. Inflorescence of axillary and terminal, glomerulate, 3- to 10-flowered cymes; floral bracts lobed, ascending or spreading; pedicels to 0.5 mm, or absent. Flowers 1.5–2.3 mm; hypanthium elongate to urceolate at maturity, $0.7\text{--}1.3 \times 0.5\text{--}0.8$ mm, glabrescent at base to sericeous at apex outside, glabrous within, reddish brown; episepals and sepals ascending, brownish red, abaxially sparsely sericeous, adaxially glabrous; episepals 4, deltate, $0.6\text{--}0.7 \times 0.25\text{--}0.35$ mm; sepals 4, deltate-ovate, $0.75\text{--}1 \times 0.5\text{--}0.6$ mm; stigmas clavate. Achenes 3 to 5, globose-ovoid, $0.8\text{--}1 \times 0.6\text{--}0.8$ mm, surface slightly reticulate-bullate, glabrous.

Distribution, habitat, and phenology. *Lachemilla kieftiana* is only known from the Sierra Nevada de Santa Marta in Colombia, between 3350 and 3700 m, where it grows in open páramo and scrub vegetation. The species has been collected in flower in September.

IUCN Red List category. *Lachemilla kieftiana* should be classified as DD (Data Deficient) according to IUCN Red List criteria (IUCN, 2001). The species has been found in a limited area of distribution, which suggests that it is a rare taxon. It is possible, however, that the species persists in nearby areas with similar habitats.

Etymology. The name of the species honors Bert Kieft, a former Ph.D. student at Utrecht University, who collected, studied, and identified many specimens of Andean *Lachemilla*.

Relationships. This new species is similar to *Lachemilla uniflora* Maguire in habit, indumentum, and form of the leaves. However, *L. kieftiana* differs by having larger leaves and cymes of three to 10 flowers. In *L. uniflora*, flowers are solitary or occasionally in few-flowered cymes of three to 10 flowers, the hypanthia mostly glabrous, and the episepals shorter than those of *L. kieftiana*.



Figure 2. *Lachemilla kieftiana* Romoleroux. —A. Habit. —B. Basal leaves with stipules. —C. Flowering branch. —D. Flower. Drawn from the holotype J. Cuatrecasas & R. Romero-Castañeda 24554 (U).

Paratypes. COLOMBIA. **Magdalena:** Sierra Nevada de Santa Marta, “Vallecito de la Laguna Pérdida, entre la fila la Cumbre y la Cuchilla la Cimarrona,” 3350 m, *O. Rangel* 1385 (U); Caserío de San Sebastián, Bellavista, 3500 m, *O. Rangel* 1985 (NY).

Acknowledgments. I thank the Alexander von Humboldt Foundation for financial support and the Department of Systematic Botany of the Ludwig Maximilian University, Munich, Germany, and the

Pontificia Universidad Católica, Quito, Ecuador, for academic support. I am grateful to Peter Döbbelar (M) for preparation of the Latin diagnoses; Lillo Klingenberg (M), Elena Reiner-Drehwald (GOET), Verónica Sandoya (QCA) for the illustrations; and Robbin Moran (NY), Alina Freire-Fierro (PH), Charlotte Taylor (MO), Robert Gradstein (GOET), and two anonymous reviewers for their comments on early versions of the manuscript. I thank the directors of the

following herbaria for the loan of specimens: AAU, F, GOET, L, NY, QCA, and U.

Literature Cited

- Focke, W. O. 1888. Rosaceae. Pp. 1–61 in A. Engler & E. Prantl (editors), *Die natürlichen Pflanzenfamilien*, III. W. Engelmann, Leipzig.
- Gehrke, B., C. Bräuchler, K. Romoleroux, M. H. Lundberg, G. Heubl & T. Ericksson. 2008. Molecular phylogenetics of *Alchemilla*, *Aphanes* and *Lachemilla* (Rosaceae) inferred from plastid and nuclear intron and spacer DNA sequences, with comments on generic classification. *Molec. Phylogen. Evol.* 47: 1030–1044.
- IUCN. 2001. IUCN Red List Categories and Criteria, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Perry, L. M. 1929. A tentative revision of *Alchemilla* subgenus *Lachemilla*. *Contr. Gray Herb.* 84: 1–57.
- Romoleroux, K. 2004. The genus *Lachemilla* in the northern Andes of South America. *Lyonia* 7(1): 21–32.
- Rothmaler, W. 1937. Systematische Vorarbeiten zu einer Monographie der Gattung *Alchemilla* (L.) Scop. emend. VII. Aufteilung der Gattung und Nomenclatur. *Repert. Spec. Nov. Regni Veg.* 42: 164–173.
- Rydberg, P. A. 1908. Rosaceae. Pp. 377–385 in *North American Flora*, Vol. 22, Pt. 4.